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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

KURAMOTO ET AL

Application No.: 10/632,106 Art Unit: 2814

Filed: August 1, 2003 Examiner: H. Pham

For: SOLDER BALL ASSEMBLY, A METHOD FOR ITS MANUFACTURE,  
AND A METHOD OF FORMING SOLDER BUMPS

RESPONSE TO RESTRICTION REQUIREMENT

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

In response to the Official Action mailed on July 30, 2004 in connection with the present application and containing a restriction requirement, the Applicants traverse the restriction requirement but provisionally elect the claims of Group I (claims 1 - 15) for examination in the present application.

The restriction requirement is traversed because it does not satisfy either of the requirements for restriction between patentably distinct inventions.

According to MPEP 803, there are two criteria for a proper requirement for restriction:

(A) The inventions must be independent or distinct as claimed; and

(B) There must be a serious burden on the examiner if restriction is required.

Regarding requirement (A), according to MPEP 806.05(f), a process of making a product and a product made by the process can be shown to be distinct inventions if either or both of the following can be shown: (1) that the process as claimed is not an obvious process or making the product and the process as claimed can be used to make other and different products; or (2) that the product as claimed could be made by another and materially different process.

In applying these criteria to the present claims, page 2 of the Official Action states that "In the instant case, the product as claimed can be made by another and materially different process such as, the solder ball can be made of polysilicon instead of metal, plastic, plated plastic or ceramic."

The Applicants are uncertain of the meaning of this statement in the Official Action. Namely, it is not clear whether the Examiner is arguing (a) that a ball made of polysilicon is not a solder ball at all, and it is also not a ball made of metal, plastic, plated plastic, or ceramic, or (b) that a ball made of polysilicon is in fact a solder ball, but it is not a ball made of metal, plastic, plated plastic, or ceramic.

Whichever interpretation of this statement is the correct one, the statement fails to establish that the product as claimed

can be made by another and materially different process.

The product of claims 1 - 14 includes a solder ball, while the product of claim 15 includes a ball comprising a material selected from metals, plastics, plated plastics, and ceramics. A method which employs a ball made from a material different from those recited in claims 1 - 15 cannot result in the product as claimed by these claims.

If interpretation (a) of the statement in the Official Action is correct, then a method employing a polysilicon ball would not result in a solder ball assembly including either a solder ball (as set forth in claims 1 - 14) or a ball assembly including a ball comprising a material selected from metals, plastics, plated plastics, and ceramics (as set forth in claim 15), since according to interpretation (a), a polysilicon ball is neither a solder ball nor a ball made of metal, plastic, plated plastic or ceramic. Thus, with interpretation (a), the Official Action has failed to show an example of a materially different process resulting in the claimed product.

If interpretation (b) of the statement in the Official Action is correct, then a method employing a polysilicon ball would presumably result in a solder ball assembly including a solder ball (as set forth in claims 1 - 14), but if a polysilicon ball is, by the Examiner's definition, a solder ball, then a method employing a polysilicon ball would not be materially different from the claimed methods, which employ a solder ball without further specifying the material of the solder ball. Thus, with interpretation (b), the Official Action has not shown

any example of a materially different process resulting in the product of claims 1 - 14.

Furthermore, if interpretation (b) of the statement in the Official Action is correct, then a method employing a polysilicon ball would not result in a ball assembly including a ball comprising a material selected from metals, plastics, plated plastics, and ceramics (as set forth in claim 15), since according to interpretation (b), a polysilicon ball is not a ball made of metal, plastic, plated plastic, or ceramic. Therefore, with interpretation (b), the Official Action has not given any example of a materially different process resulting in the product of claim 15.

Thus, whichever interpretation is given to the statement in the Official Action that "In the instant case, ... polysilicon instead of metal, plastic, plated plastic or ceramic", it fails to satisfy the requirements set forth in MPEP 806.05(f) for showing distinctness between a product a method of making the product.

It is to be noted that the Applicants here are making no assertion as to whether a product or method employing polysilicon does or does not fall within the scope of the claims. The scope of the claims is not an issue at the moment, only the interpretation of statements in the Official Action.

Regarding requirement (B) of MPEP 803, the Official Action has failed to show the existence of a serious burden on the examiner. According to MPEP 803, a serious burden on the

examiner may be *prima facie* shown if the examiner shows by appropriate explanation of separation classification, or separate status in the art, or a different field of search. The Official Action asserts that claims 1 - 15 have a different classification from claims 16 - 21, but the classifications mentioned in the Official Action do not appear to have any pertinence to the subject matter of the claims. The Official Action states that claims 1 - 15 are drawn to a semiconductor device and that claims 16 - 21 are drawn to a method of making a semiconductor device, but neither of these statements appears accurate. Claims 1 - 15 describe a solder ball assembly or a ball assembly including a mask and plurality of balls disposed in the mask. Claims 16 - 21 describe a method of manufacturing a solder ball assembly or a method of forming solder bumps using a solder ball assembly. The word "semiconductor" does not appear in and is not implied by any of the claims. The product of claims 1 - 15 is not a semiconductor device, and the methods of claims 16 - 21 do not form a semiconductor device. Thus, the classifications for the claims listed in paragraph 1 of the Official Action appear inaccurate. It seems very likely that a semiconductor device would be classified differently from a method of making a semiconductor device, but since the claims do not pertain to either a semiconductor device or a method of making a semiconductor device, the Official Action has not shown that the pending claims have different classifications. As such, the Official Action has not made a *prima facie* showing of a serious burden on the examiner.

Accordingly, since neither of the above requirements (A) and (B) of MPEP 803 has been satisfied, the restriction requirement is improper. Therefore, examination of all of claims 1 - 21 as a single group is appropriate, and withdrawal of the restriction requirement is requested.

Respectfully submitted,



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